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Acoustic Rapid COTS Insertion (A-RCI)

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Acquisition Research:
Creating Synergy for Informed Change
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Acoustic Rapid COTS Insertion (A-RCI)

A Case Study in Modular Open Systems Architecture

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Background Info: *Federated Systems*

EXAMPLES:

- The Internet
- Intranet: Network of computers and servers

BENEFITS:

- “Plug & Play”
- Ease of update for technical improvement or to avoid obsolescence
- Significant reduction in O&S cost – PDSS
- Invites competition
- Software reuse and software portability
- Use of common COTS processors

Navy Sonar Situation – "The *Crisis*"

- 1990s – Loss of Acoustic superiority
- Insufficient funding stream
- Seize the opportunity to try something new

"Different" Approach – *MOSA*

[Modularized Open System Architecture]

- ***Annual*** software spirals (APBs)
- ***Bi-annual*** COTS hardware insertions

Modularized Open System Architecture (MOSA) -- *Technical*

- Break *System* or *System of Systems* into functional components – hardware and software
- Control the key interfaces
- Embrace “best of breed” ***COTS processors***
- Make software decisions based on testing & ***demonstrated performance***
- ***Embedded recording*** of technical events

Modularized Open System Architecture (MOSA) -- ***Business***

- Establish forum for communication
- Set "rules of engagement"
  - Technical parameters
  - Manner of review
  - Protection and sharing of technical information
  - Contractual processes and arrangements
  - ***Competition*** of best ideas and ***best performance***
  - Teamwork – "***winning together***"
  - ***Schedule discipline***

Changing the Culture

- Change *Prime Contractor* to ***Prime System Integrator***
- ***System Modularity***
- Systems Engineering Process
- Security of Information (intellectual property)
- Invitation to Small Business, Government Labs, Academia to compete – the ***innovators***
- ***Peer Review***
- New "***op tempo***" for development
- Decisions based ***demonstrated performance***

Leadership and Motivation

- Strong ***Leadership is essential*** to proactive change
  - ***Vision***
  - ***Motivating*** stakeholders
  - ***Empowering*** team members to act
  - Determination to stay the course
- Leadership provided the mandate, the "***top-cover***," and the freedom to innovate

User Participation

- Dialog with user and ***rapid response***
- User engagement dynamics
- User "***buy-in***"
- User internal participation
- User commitment
  - Stating needs
  - Testing emerging products
  - Allowing for implementation – hardware, software, training
- User community may be ***pushed beyond their comfort zone*** and be forced to change

Ramifications

- The question of ***SCALABILITY***
- The meaning of ***obsolescence***
- Comparison of ***legacy*** vs. *new systems*
- ***Logistics***
- ***Financial management***
- ***JCIDS***
- ***Testing***

Measurable Effects

- Technical Performance
  - Regained ***technological superiority***
- Cost avoidance
  - Processor cost
  - Cost of Obsolescence
  - PDSS
- Logistics impact
  - Training
  - ***MFOP***

Summary

- A-RCI exemplified ***successful*** spiral development
- Increased ***responsiveness*** to customer needs
- Applied private sector techniques, e.g., outsourcing and ***rapid incremental improvement***
- Invited new players and ***broad competition***
- Changed prime contractor relationship
- ***Reduced*** development ***costs*** while ***increasing performance***
- Reduced O&S costs – ***reduced*** user ***logistics*** burden